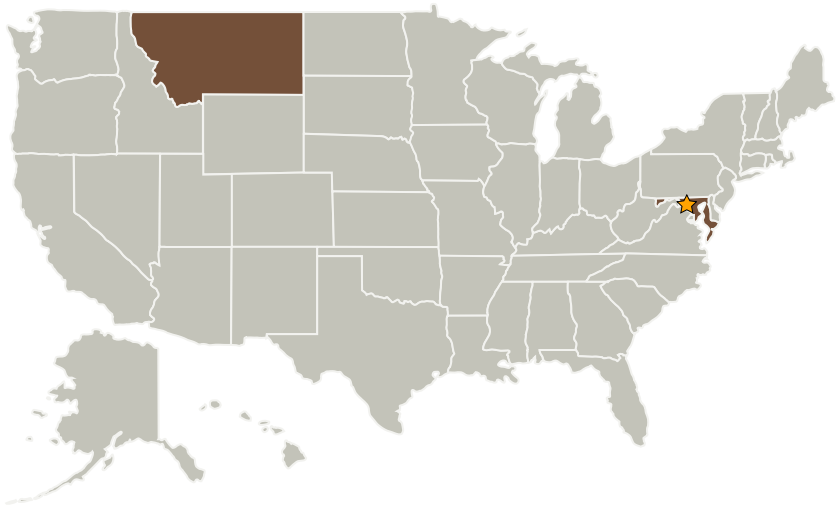
Miniature Carbon Dioxide Sensor for Small Unmanned Aircraft Systems, Phase II

Completed Technology Project (2007 - 2010)

Project Introduction

Phase 1 has seen the development of a revolutionary new type of sensor for making carbon dioxide (CO2) measurements from small Unmanned Aircraft Systems (UAS) and other platforms such as sounding balloons. The chemistry behind the new sensor has been proven, example sensors were fabricated, and the technique has shown its immunity to many interferences (notably humidity and temperature) which affect other carbon dioxide measurement technologies. Phase 2 will involve optimizing the new sensor in terms of sensitivity and manufacturability. Several field tests will be conducted with the new sensor, including baseline atmospheric CO2 measurements as well as CO2 flux measurements. Four sensors of the final design developed in Phase 2 will be delivered to NASA for use on small UAS platforms. Anticipated results include the completed development of a revolutionary new type of CO2 sensor for atmospheric research and its demonstration in the field prior to the conclusion of Phase 2. A medical variant is expected to quickly result in part from this work as well. It is also foreseen that several sensors for other gases may be developed based on this all-new measurement technology.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Anasphere, Inc.	Supporting Organization	Industry	Belgrade, Montana

Primary U.S. Work Locations	
Maryland	Montana

Project Transitions

December 2007: Project Start

June 2010: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.2 Prevention and Countermeasures